RETCF

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MEMORANDUM

DATE: May 1, 1995

TO: Jeryl Kolb, Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, TAT-Chemist, E & E, Seattle, WA MW

THRU: David Byers, TAT-Chemist, E & E, Seattle, WA DRB

SUBJ: **Organic Data Quality Assurance Review, Ridgefield Site, Ridgefield, Washington**

REF: Project TDD: T10-9410-028 Analytical TDD: T10-9412-004
Project PAN: EWA-0797-SB Analytical PAN: EWA-0797-AA

The data quality assurance review of 1 soil and 2 water samples collected from the Ridgefield site located in Ridgefield, Washington, has been completed. Analysis for Polychlorinateddibenzo dioxins and furans (EPA Method 8290) was performed by Alta Analytical Laboratory, El Dorado Hills, California.

The samples were numbered:

Water	T4120219	T4120223
Soil	T4120207	

Data Qualifications:

I Holding Time: Acceptable.

The samples were collected 12-13-94 or 12-15-94, extracted 1-13-95 or 1-21-95, and were analyzed by 1-23-95. All samples were within the QC criteria of less than 6 months between collection and extraction and less than 40 days between extraction and analysis.

II Instrument Performance: Acceptable.

A performance check solution was analyzed at the beginning of each 8-hour sample analysis period. The valley between 2,3,7,8-TCDD and the peaks representing all other TCDD isomers was resolved with a valley < 25 % in the window defining mix solution. All ion abundance and retention time criteria were met in all calibration standards.

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recycled paper

III Calibration

A. Initial Calibration: Acceptable.

The five 2,3,7,8-TCDD standards were analyzed for the initial calibration. A 6-point initial calibration was performed with all Relative Standard Deviations (RSDs) less than 15 %. The signal-to-noise ratio for ions 257, 320, 322, and 328 is greater than 2.5 and the signal-to-noise ratio for ions 332 and 334 is > 10. The ratio of ions 320 to 322 for 2,3,7,8-TCDD and 332 to 334 for $^{13}C_{12}$-2,3,7,8-TCDD is > 0.66 and < 0.88. The ions 257, 320, and 322 reached a maximum within three seconds of $^{13}C_{12}$-TCDD ions 332 and 334.

B. Continuing Calibration: Acceptable.

A continuing calibration was analyzed at the start of each 8-hour period with all % differences less than 30 percent. The ratio of ions 320 to 322 for 2,3,7,8-TCDD and 332 to 334 for $^{13}C_{12}$-2,3,7,8-TCDD is > 0.66 and < 0.88. The signal-to-noise ratio for ions 257, 320, 322, and 328 is greater than 2.5 and the signal-to-noise ratio for ions 332 and 334 is > 10. The ions 257, 320, and 322 reached a maximum within three seconds of $^{13}C_{12}$-TCDD ions 332 and 334.

IV Error and Bias Determination: Not Performed.

Samples necessary to determine error and bias were not provided to the laboratory; all sample results were flagged as PND (Precision Not Determined) and RND (Recovery Not Determined), although the flags are not found on the Form I's.

V Blanks: Satisfactory.

No dioxin or furan isomers were detected above the method reporting limits in either the method or reagent blank, except:

Blank	Analyte	Concentration
Water Method Blank	OCDD	46 pg/L

Positive sample results less than 5 times the blank concentration were flagged as not detected (U).

VI Internal Standards: Acceptable.

Ions 332 and 334 were within the 0.67 to 0.87 QC criteria.

VII TCDD Identification: Acceptable.

The retention time of 2,3,7,8-TCDD was within 3 seconds of the $^{13}C_{12}$-2,3,7,8-TCDD retention time. The integrated ion currents detected for m/z 257, 320, and 322 maximized simultaneously. The ion ratio of 320 to 322 and 332 to 334 is > 0.66 and < 0.88. The integrated ion current for m/z 257, 320, 322, and 328 are greater than 2.5 times background noise. The internal standard ions are at least 10 times background noise.

VIII Performance Evaluation Samples: Not Performed.

Performance evaluation samples were not provided to the laboratory.

IX Surrogate Recovery: Acceptable.

Recoveries for all surrogate compounds were within QC limits of 60 % to 140 %. The S/N ratio for ion 328 for $^{37}C_{l4}$-2,3,7,8-TCDD was greater than 2.5.

X Overall Assessment of Data for Use

Results greater than the instrument detection limit but less than the practical quantitation limit or sample results that were listed as estimated maximum possible concentrations were flagged as estimated quantities (J).

The overall usefulness of the data is based on the criteria outlined in the OSWER Directive "Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan and Data Validation Procedures" (EPA /540/G-90/004). Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

J - The associated numerical value is an estimated quantity because the reported concentrations were less than the contract required detection limits or quality control criteria were not met.

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.

ALTA

PCDD & PCDF

EPA METHOD 8290

Sample ID: T4120219
Lab ID: 14351-001-SA
Matrix: Aqueous

Date Received: 1/11/95
Date Extracted: 1/21/95
Sample Amount: 0.931 L

ICAL ID: I1613A
QC Lot: LC0111A
Units: pg/L

Compound	Conc.	D.L.	Ratio	S/N Ratio	Qualifier
2,3,7,8-TCDD	ND	1.1 U			
Total TCDD	ND	2.2			
1,2,3,7,8-PeCDD	ND	1.5			
Total PeCDD	ND	1.5			
1,2,3,4,7,8-HxCDD	ND	2.4			
1,2,3,6,7,8-HxCDD	15 J		1.36	9:1	A MN
1,2,3,7,8,9-HxCDD	ND	4.5 U			
Total HxCDD	31		1.26	>10:1	
1,2,3,4,6,7,8-HpCDD	170		1.02	>10:1	
Total HpCDD	270		1.01	>10:1	
OCDD	1300		0.86	>10:1	B MN
2,3,7,8-TCDF	ND	0.93 U			
Total TCDF	ND	0.93			
1,2,3,7,8-PeCDF	ND	1.8			
2,3,4,7,8-PeCDF	ND	1.5			
Total PeCDF	4.7 J		1.43	8:1	A MN
1,2,3,4,7,8-HxCDF	ND	3.4 U			
1,2,3,6,7,8-HxCDF	ND	3.3			
2,3,4,6,7,8-HxCDF	ND	3.4			
1,2,3,7,8,9-HxCDF	ND	3.6			
Total HxCDF	44		1.20	>10:1	
1,2,3,4,6,7,8-HpCDF	64		1.08	>10:1	
1,2,3,4,7,8,9-HpCDF	ND	4.0 U			
Total HpCDF	250		1.08	>10:1	
OCDF	460		0.88	>10:1	

Analyst: [signature]

Reviewer: [signature]

MN 5-1-95

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ALTA

PCDD & PCDF

EPA METHOD 8290

Sample ID: T4120223
Lab ID: 14351-003-SA
Matrix: Aqueous

Date Received: 1/11/95
Date Extracted: 1/21/95
Sample Amount: 0.871 L

ICAL ID: I1613A
QC Lot: LC0111A
Units: pg/L

Compound	Conc.	D.L.	Ratio	S/N Ratio	Qualifier
2,3,7,8-TCDD	ND	1.4 U			
Total TCDD	ND	2.3			
1,2,3,7,8-PeCDD	ND	3.3			
Total PeCDD	ND	3.3			
1,2,3,4,7,8-HxCDD	ND	3.3			
1,2,3,6,7,8-HxCDD	16 J		1.09	>10:1	
1,2,3,7,8,9-HxCDD	ND	3.6 U			
Total HxCDD	30		1.26	>10:1	
1,2,3,4,6,7,8-HpCDD	200		1.05	>10:1	
Total HpCDD	310		1.01	>10:1	
OCDD	1700		0.86	>10:1	
2,3,7,8-TCDF	ND	1.1 U			
Total TCDF	ND	1.1			
1,2,3,7,8-PeCDF	ND	2.9			
2,3,4,7,8-PeCDF	ND	2.3			
Total PeCDF	5.6 J		1.32	8:1	
1,2,3,4,7,8-HxCDF	ND	3.5 U			
1,2,3,6,7,8-HxCDF	ND	3.3			
2,3,4,6,7,8-HxCDF	ND	3.7			
1,2,3,7,8,9-HxCDF	ND	4.2			
Total HxCDF	58		1.28	>10:1	
1,2,3,4,6,7,8-HpCDF	84		1.08	>10:1	
1,2,3,4,7,8,9-HpCDF	13 J		1.02	>10:1	
Total HpCDF	410		1.08	>10:1	
OCDF	740		0.88	>10:1	

Analyst:

Reviewer:

MW 5-1-95

ALTA

PCDD & PCDF

EPA METHOD 8290

Sample ID: T4120207
Lab ID: 14351-002-SA
Matrix: Soil
% Solid: 67

Date Received: 1/11/95
Date Extracted: 1/13/95
Sample Amount: 13.81 g

ICAL ID: I1613A
QC Lot: LC0109S
Units: pg/g

Compound	Conc.	D.L.	Ratio	S/N Ratio	Qualifier
2,3,7,8-TCDD	3.3		0.75	>10:1	
Total TCDD	25		0.79	>10:1	
1,2,3,7,8-PeCDD	2.7		1.60	>10:1	
Total PeCDD	24		1.68	>10:1	
1,2,3,4,7,8-HxCDD	9.7		1.10	>10:1	
1,2,3,6,7,8-HxCDD	49		1.26	>10:1	
1,2,3,7,8,9-HxCDD	16		1.28	>10:1	
Total HxCDD	250		1.24	>10:1	
1,2,3,4,6,7,8-HpCDD	670		1.02	>10:1	
Total HpCDD	1200		1.16	>10:1	
OCDD	5400		0.89	>10:1	
2,3,7,8-TCDF	1.1		0.80	>10:1	
Total TCDF	42 J		0.77	>10:1	DMW
1,2,3,7,8-PeCDF	2.8		1.69	>10:1	
2,3,4,7,8-PeCDF	8.8		1.58	>10:1	
Total PeCDF	84 J		1.61	>10:1	DMW
1,2,3,4,7,8-HxCDF	15		1.31	>10:1	
1,2,3,6,7,8-HxCDF	7.9		1.19	>10:1	
2,3,4,6,7,8-HxCDF	11		1.31	>10:1	
1,2,3,7,8,9-HxCDF	3.7		1.09	>10:1	
Total HxCDF	280 J		1.23	>10:1	DMW
1,2,3,4,6,7,8-HpCDF	130 J		1.03	>10:1	DMW
1,2,3,4,7,8,9-HpCDF	6.7		1.03	>10:1	
Total HpCDF	430 J		1.03	>10:1	DMW
OCDF	8700		0.86	>10:1	

Analyst: MW

Reviewer: SM

MW 5-1-95

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